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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,395	07/10/2006	Masahiro Ohmori	Q75284	9014

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EXAMINER	
JACKSON, MONIQUE R	

ART UNIT	PAPER NUMBER
1794	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/553,395	OHMORI, MASAHIRO	
	Examiner	Art Unit	
	Monique R. Jackson	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 7-10* is/are rejected.

7)☒ Claim(s) *6 and 11-15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/17/05,7/10/06,10/5/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 6 and 11-15 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 6 and 11-15 have not been further treated on the merits.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2-3 and Claims 4-5, as they depend on Claims 2-3, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 2 and 3 recite a number of defects and projections, respectively, "per surface" but the claims fail to define what surface or the size of such surface and hence it is unclear what is meant to be encompassed by the claims given that the calculation is relative.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Arita et al (US 20020027732.) Arita et al '732 teaches a magnetic recording medium comprising a substrate

and a magnetic layer formed thereon wherein the magnetic layer has a thickness of preferably at most 200 nm, and is a Co alloy magnetic layer, such as CoNi, CoSm, CoCrTa, CoNiCr or CoCrPt or one having an element such as Ni, Cr, Pt, Ta, W or B or a compound such as SiO.sub.2 further added to such a Co alloy. (Abstract; Paragraph 0194.) Arita et al teach that the surface roughness Ra of the medium after formation of the magnetic pattern is preferably maintained to be at most 3 nm, more preferably at most 1.5nm (*hence less than 1.5nm, which encompasses the claimed range*), so as not to impair the running stability of the flying/contact head (Paragraph 0215.)

6. Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipated by JP 10-74318 A (JP'318.) JP'318 teaches a substrate for use in a magnetic recording medium comprising a blank substrate and a film of phosphorus or boron containing cobalt alloy formed on the blank substrate by electroless plating followed by polishing (Pages 5, 9, 11, and 20; Claims 14-15.)

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-5 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'318. As discussed above, JP'318 teaches a substrate for use in a magnetic recording medium comprising a blank substrate and a film of phosphorus or boron containing cobalt alloy formed on the blank substrate by electroless plating followed by polishing (Pages 5, 9, 11, and 20; Claims 14-15.) JP'318 teaches that the layer to be textured such as the NiP is electroless

deposited to a thickness of typically 5 to 10 microns; and that other metal alloys can be utilized such as cobalt alloys (Pages 15 and 20.) Though JP'318 teaches that the layer to be textured such as the cobalt alloy layer should have a very smooth surface or small amount of roughness to lower stiction and friction in case the read write head inadvertently touches down in the data zone (page 11), JP'318 does not specifically teach the surface roughness Ra of the plated film as instantly claimed. However, it would have been obvious to one having ordinary skill in the art to utilize routine experimentation to determine the optimum amount of polishing to provide the desired surface roughness Ra, including the number and size of projections and depressions, to provide the desired running stability or to minimize adverse noise, wherein a surface roughness Ra within the claimed range is typical in the art. Further, though JP'318 teaches that the texture layer is a metal alloy comprising a first material selected from Ni, Co, Fe and Mo, and a second material selected from the group consisting of P, B, Se and Sb; and preferably a Co or Ni based alloy (Claims 14-15); JP'318 does not specifically teach the amount of P or B in the Co alloy as instantly claimed. However, the content of P or B is a known result-effective variable and one skilled in the art would have been motivated to determine the optimum minor amount of each to provide in the cobalt alloy based upon the desired mechanical or magnetic properties for a particular end use. With respect to Claims 9 and 10, though JP'318 does not specifically teach the claimed chemical polishing liquid, the Examiner takes the position that the claimed polishing liquid is a conventional polishing liquid typically utilized in the art and would have been obvious to one having ordinary skill in the art at the time of the invention.

9. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP58-157106A (JP'106.) JP'106 teaches a magnetic recording medium substrate comprising a Ni-Co-

P film formed by electroless plating on the surface of a non-magnetic substrate wherein the alloy comprises 55-78wt% Ni, 15-41wt% Co, and 3-8wt% P (Abstract.) JP'106 does not teach the surface roughness Ra of the plated film as instantly claimed, however, it is well established in the art that a smooth or low surface roughness on the order as instantly claimed is desirable in producing magnetic recording medium and hence would have been obvious to one skilled in the art at the time of the invention.

10. Claims 1-5 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arita et al '759 (USPN 5,928,759) in view of Arita et al '732 and JP'318. Arita et al '759 teach a magnetic recording medium having at least a magnetic layer, optionally an underlayer, on a non-magnetic substrate, wherein the projections and depressions on the surface thereof are controlled and specifically, the projections are formed by irradiation of an energy beam and each having a height from 1 to 60 nm are provided at the number of 10^2 to 10^8 per 1 mm^2 on the surface of any one of the non-magnetic substrate, the under layer, the magnetic layer and the magnetic recording medium (Abstract; Col. 2, lines 21-49; Col. 5-8.) Arita et al '759 teach that the substrate with an underlayer is typically polished to provide a mirror surface and specifically teach an example wherein after applying a NiP plating underlayer by electroless plating to a thickness of 10 to 20 microns on the substrate, the NiP layer is surface polished so as to impart a surface roughness of not more than 1 nm (Col. 5, lines 3-17; Example 32.) Arita et al '759 also teach that the magnetic recording layer may be formed from Co-P or other cobalt alloys, to a thickness of 30 to 70 nm, by electroless plating or other method (Col. 4, lines 39-49.) Arita et al '759 do not specifically teach that the underlayer is a cobalt alloy as claimed or that the disclosed cobalt alloy magnetic layer also has a surface roughness as claimed. However, it is well

established in the art that surface roughness of the magnetic layer is a result-effective variable affecting the running stability of the head or noise generated, wherein it is preferred to maintain a low Ra surface roughness, wherein a value of Ra on the order of the Ra disclosed by Arita et al '759 for the substrate would have been obvious so as not to impair the running stability, as further evidenced by Arita '732 as discussed above. It is also noted that cobalt alloys are suitable substitute metal alloys for NiP as taught by JP'318 and hence it would have been obvious to utilize a cobalt alloy comprising B or P as taught by JP'318, with the amount of B or P determined by routine experimentation based upon the desired mechanical properties for a particular end use. With respect to Claims 7-10, though Arita '759 do not specifically teach the claimed chemical polishing liquid or polishing depth, the Examiner takes the position that the claimed polishing liquid is a conventional polishing liquid typically utilized in the art and would have been obvious to one having ordinary skill in the art at the time of the invention, wherein one skilled in the art at the time of the invention would have been motivated to utilize routine experimentation to determine the optimum polishing depth to provide the desired surface roughness and resulting layer thickness taught by Arita '759.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique R. Jackson whose telephone number is 571-272-1508. The examiner can normally be reached on Mondays-Thursdays, 10:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Monique R Jackson/
Primary Examiner, Art Unit 1794
August 16, 2008